

REMARKS

Applicants acknowledge with appreciation the Examiner's detailed reply to Applicants' response to the Examiner's previous office action. Applicants have attempted to address the Examiner's continued concerns and rejections by further amendment to the claims and by further remarks as indicated below.

Allowable Claim

Applicants acknowledge with appreciation that the Examiner has indicated that Claim 4 is allowable, or would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants previously amended this claim to that effect and believe that this claim is now in condition for allowance.

Claim Rejections—35 U.S.C. § 112

The Examiner has rejected claims 15, 16, 28, 40, 50, 51, 53-55, 57 and 58 under 35 U.S.C. § 112, second paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner has explained that in claims 15, 28, 40 and 50 the terms "selected from the group comprising" or "selected from the group consisting essentially of" have been used and are improper Markush terminology since they would include other compounds not listed in the Markush grouping. Applicants have amended these claims to use the terms "selected from the group consisting of" which the Examiner has indicated would be proper.

Claim Rejections—35 U.S.C. § 102

The Examiner has rejected claims 1, 5-9, 12-14, 18-22, 25, 26, 81 and 82 under 35 U.S.C. § 102(b) as anticipated by Mueller U.S. Patent No. 5,869,434. Specifically the Examiner has indicated that "Mueller teaches a drilling fluid which comprises an ester and **linear alpha olefin** as continuous phase, wherein the ester may be a product such as PETROFREE or rapeseed oil." (emphasis added). The Examiner states that: "A linear alpha olefin may be made by isomerization, thus applicants claims do not distinguish absent further definition of the olefin structure" and that "Applicants method of making the ester does not distinguish, since in product

by process claims, only the product is examined.” Applicants have now amended these claims to specifically refer to internal olefins or to exclude linear alpha olefins.

The Examiner has rejected claims 50, 51, 53-55, 57, 58, and 85 under 35 U.S.C. 102 (3) as anticipated by Mueller U.S. Patent No. 6,165,956. Specifically, the Examiner has stated that “Mueller teaches a drilling fluid which comprises esters of 2-ethyl-hexanol alcohols and rapeseed oil” and the “use of the term ‘selected from the group consisting essentially of’ opens the claim to other glyceride trimesters other than those listed, and thus does not exclude rapeseed oil since the fluid can be used for the same purpose.” Further, the Examiner states that “Applicants method of making the ester does not distinguish, since in product by process claims, only the product is examined.” Applicants have now amended independent claim 50 so that rapeseed oil and any other oil not listed is excluded by changing the terms cited by the Examiner to read “selected from the group consisting of”. Claims 51, 53-55, 57, 58 and 85, being directly or indirectly dependent on claim 50, are consequently similarly amended and limited by such dependence.

The Examiner has rejected claims 1, 5-9, 12-14, 18-22, 25, 26, 50, 51, 53-55, 57, 58, 81, and 85 under 35 U.S.C. § 102(b) as anticipated by WO 95/26386. Specifically the Examiner has indicated that “WO teaches an invert emulsion drilling fluid which comprises a triglyceride ester oil in admixture with another ester or an alpha olefin, wherein the triglyceride ester and ester are within the scope of the present invention.” He adds that “Ultradrig taught in Example 9 is a mixture of C14-16 alpha olefins” and that “a linear alpha olefin may be made by isomerization” so that “applicants claims do not distinguish absent further definition of the olefin structure.” Applicants have amended these claims to specifically refer to internal olefins or to exclude linear alpha olefins.

Applicants respectfully submit that support for these amendments to the claims to specifically refer to internal olefins or to exclude linear alpha olefins may be found in the specification. Applicants have stated on page 2 at line 21 and page 5 at line 8 of their specification that the olefins in their invention are “isomerized, or internal, olefins.” (emphasis added). By definition, “internal” olefins have their double bonds in positions **other** than the alpha position. Neither Mueller U.S. Patent No. 5,869,434 nor WO 95/26386 “disclose(s) every element of the challenged claim(s)” as necessary for the references to anticipate the claimed invention. *PPG Industries, Inc. v. Guardian Industries Corp.*, 75 F.3d 1558, 37 U.S.P.Q.2d 1618

(Fed. Cir. 1996). The law is well settled that “to anticipate, every element and limitation of the claimed invention must be found in a single prior art reference, arranged as in the claim.” *E.g., Brown v. 3M*, 265 F.3d 1349, 60 USPQ2d 1375 (Fed. Cir. 2001); *Electro Med. Sys. S.A. v. Dooper Life Sciences*, 34 F.3d 1048, 1052, 32 U.S.P.Q.2d 1017, 1019 (Fed. Cir. 1994) (“anticipation under 35 U.S.C. § 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention”).

The Examiner has rejected claims 1-3, 5-9, 12-16, 25-28, 30-33, 36-38, 43, 44, 48-51, 54, 57, 58, 81-85 under 35 U.S.C. § 102(e) as being anticipated by Patel United States Patent Application Publication No. US 2001/0009890 A1. The Examiner has indicated that “Patel teaches an invert emulsion drilling fluid which comprises esters and a C16-18 isomerized olefin (see the examples)” and that “Patel further teaches the combination of various esters and hydrocarbons such as mineral oils (see claims 1 and 9).” The Examiner has stated that “Such mineral oils would comprise paraffins according to the present invention” and that “Combinations of glycerides of fatty acids and esters are taught at paragraph [0018].” The Examiner has indicated that “Applicants method of making the ester does not distinguish, since in product by process claims, only the product is examined.”

Applicants respectfully traverse the Examiner’s rejections based on Patel because Patel’s teachings are directed to an ester based synthetic drilling fluid and a hydrocarbon under conditions of “negative alkalinity.” [¶¶ 11, 40] Applicants’ invention does not require “negative alkalinity.” Anticipation requires **identity** of the invention. *Glaverbel Société Anonyme v. Northlake Marketing & Supply Inc.*, 45 F.3d 1550, 33 U.S.P.Q.2d 1496 (Fed. Cir. 1995)(emphasis added).

The Examiner states that Patel meets every limitation of Applicants claims and that Applicants do not distinguish over the teachings of Patel. The Examiner has stated that Patel “meets every limitation of the present claims and teaches fluids with ‘negative alkalinity’, and comparative fluids which comprise lime and are thus positively alkaline (see Table7).” However, Applicants respectfully submit that Patel states in paragraph [0085] that “Upon review of the above data (referring to Tables 7 and 8) one of ordinary skill in the art should appreciate that the negative alkalinity mud (formulations # 1; #2) perform better as functional drilling fluids than those drilling fluids formulated with lime (e.g. fluids #3; and #4)” while “A further conclusion can be made that the presence of the lime causes the hydrolysis of the esters present

in the mud formulation and thus the loss of properties desirable for drilling fluids.” (emphasis added). Property limitations can serve to distinguish claimed subject matter from other products. *E.I du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 7 U.S.P.Q.2d 1129 (Fed. Cir. 1988). Patel indicates that negative alkalinity is needed for the fluids to be effective as drilling fluids and thus Applicants respectfully submit that Patel cannot have the requisite “identity” with Applicants’ invention to anticipate it as Applicants’ do not require this element. Also, although more relevant to non-obviousness, where it is disclosed that the prior-art compound “cannot be regarded as useful” for the use disclosed, as Patel teaches when the “negative alkalinity” element is omitted, a person having ordinary skill in the art would lack the “necessary impetus” to make the claimed compound. *In re Albrecht*, 514 F.2d 1389, 185 U.S.P.Q. 585 (C.C.P.A. 1975).

Claim Rejections—35 U.S.C. § 103

The Examiner has rejected claims 1, 10, 11, 14, 23, 24, 38-42, 45-47, 50, 54-56, 81, 82, 84, and 85 under 35 U.S.C. § 103 as obvious from Patel United States Patent Application Publication No. US 2001/0009890 A1. The Examiner states that, “Patel teaches a drilling fluid which comprises esters and a C16-C18 isomerized olefin.” The Examiner also states that “Patel further teaches the combination of various esters and hydrocarbons such as mineral oils” and that “such mineral oils would comprise paraffins according to the present invention.” The Examiner states that “Combinations of glycerides of fatty acids and esters are taught at paragraph [0018].” The Examiner admits that “Patel differs from the present invention in that the use of 2-ethylhexanol is not disclosed, and the specific composition of the mineral is not disclosed.” However, the Examiner considers that the “use of 2-ethylhexanol would be obvious to one of ordinary skill in the art given the teaching of Patel that alcohols of C1-12 length may be used in the formation of the esters (claim 1), particularly in view of the teaching of Mueller that esters made from 2-ethylhexanol may be used in invert emulsion drilling fluids.” Further, the Examiner indicates that the “use of low aromatic mineral oils as the continuous phase of an invert emulsion drilling fluid is taught by Rines, which improves environmental compatibility. Also, according to the Examiner, “use of a low aromatic mineral oil in the invert emulsion of Patel, such as that taught by Rines, comprising paraffins and olefins of low carbon chain length

in order to protect the environment would be an obvious variation to one of ordinary skill in the art, particularly in view of the teaching of a low toxicity mineral oil by Patel.

The Examiner has rejected claims 27-37 and 83 under 35 U.S.C. § 103 as obvious from Lin U.S. Patent No. 5,569,642, in view of Mueller U.S. Patent No. 6,165,946. The Examiner has stated that “Lin teaches the use of a mixture of linear and branched paraffins for use as the continuous phase of a drilling fluid.” Further, the Examiner has indicated that “Lin teaches that the paraffin mixture may be used in combination with an ester in order to improve the performance of the fluid or lower costs. The Examiner admitted that “Lin differs from the present invention in not disclosing an example of such esters.” However, the Examiner stated that “Mueller teaches the use of ester oils as the continuous phase of a drilling fluid, which comprises esters of 2-ethylhexanol.” The Examiner has concluded that “It would have be obvious to one of ordinary skill in the art to use known drilling fluid ester formulations, such as that of Mueller, in the drilling fluid of Lin, given the teaching of Lin that esters may be used therein in order to improve drilling performance, or lower cost.”

The Examiner also considered Applicants remarks submitted in response to the previous office action. Those remarks are reproduced below:

Applicants respectfully submit that the Examiner’s statements reflect application of the regularly rejected **obvious-to-try** standard. See *Ex parte Erlich*, 3 U.S.P.Q.2d 1011 (B.P.A.I. 1986). The Federal Circuit has repeatedly held that obvious-to-try or obvious-to-experiment is **not the standard for obviousness** under 35 U.S.C. §103. *In re Geiger*, 815 F.2d 686, 2 U.S.P.Q.2d 1276 (Fed. Cir. 1987). **According to the Federal Circuit, an “obvious-to-try” situation exists when a general disclosure may pique the scientist’s curiosity, such that further investigation might be done as a result of the disclosure, but the disclosure itself does not contain a sufficient teaching of how to obtain the desired result or indicate that the claimed result would be obtained if certain directions were pursued.** *In re Lilly & Co.*, 902 F.2d 943, 14 U.S.P.Q.2d 1741, 1743 (Fed. Cir. 1990).

The Federal Circuit has dictated that the prior art must provide a motivation or reason for the worker in the art, without the benefit of the applicants’ specification, to make the necessary changes to reach applicants’ invention. *In re Jones*, 958 F.2d 347, 21

U.S.P.Q.2d 1941, 1944 (Fed. Cir. 1992); *In re Deminski*, 296 F.2d 436, 230 U.S.P.Q. 313 (Fed. Cir. 1986); *accord*, *Ex parte Kranz*, 19 U.S.P.Q.2d 1216, 1218 (B.P.A.I. 1990).

A basic issue is whether the applied reference suggests the claimed invention as a solution to the specific problem solved by Applicants' invention. *Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick Co.*, 730 F.2d 1452, 221 U.S.P.Q. 481 (Fed. Cir. 1984). Focusing on the obviousness of substitutions and differences, as Applicants respectfully submit the Examiner has done here, instead of on the invention as a whole, is a legally improper way to simplify the difficult determination of obviousness. *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 U.S.P.Q. 81, 93 (Fed. Cir. 1976). There is no basis for concluding that an invention would have been obvious solely because it is a combination of elements that were known in the art at the time of the invention. *Smiths Industries Medical Systems Inc. v. Vital Signs Inc.*, 183 F.3d 1347, 51 U.S.P.Q.2d 1415, 1420 (Fed. Cir. 1999).

Applicants respectfully submit that Patel is focused on a **different problem than Applicants** and that Patel fails to suggest Applicants' invention. Patel teaches in paragraph 31 that esters that may be used in the practice of the Patel invention "do not show the same in-use behavior as the ester based drilling fluids reported prior to the present invention." Patel explains further in paragraph 31 that:

In practical application, the esters of C.sub.1 to C.sub.12 alcohol and C.sub.8 to C.sub.24 monocarboxylic acid undergo hydrolysis in the presence of hydroxide ion (OH.sup.-), resulting in the formation of the corresponding alcohol and carboxylic acid. The formation of acid in conventional ester based drilling fluid is of great concern because such fluids have an alkaline reserve which is chemically neutralized by the acids thus destabilizing the invert emulsion drilling fluid. Further the acid in the presence of lime may form a calcium soap which further promotes the adverse effect on rheology of the invert emulsion. The hydrolysis reaction is reported to be the primary reason for the careful selection of esters that are either thermodynamically or kinetically stable with regard to the hydrolysis reaction.

Patel goes on in paragraph 32 to teach that in his invention the hydrolysis of the ester is greatly reduced by substantially eliminating the source of hydroxide ion, "i.e., the alkaline reserve." In this context, Patel teaches in paragraph 33 cited by the Examiner that the choice of esters which may be used in the invention may be selected from the general class of reaction products of monofunctional carboxylic acids with monofunctional alcohols. Patel indicates that C.sub.8-C.sub.24 carboxylic acids should

be predominantly used and these may be derived from unbranched or branched hydrocarbon chains, preferably linear chains and may be saturated, monounsaturated or polyunsaturated. . . .” (emphasis added).

Patel’s teachings are directed to certain combinations that provide “negative alkalinity” conditions—that substantially eliminate hydroxide ion--which Patel teaches is in distinct contrast to known esters used in drilling fluids. Applicants on the other hand teach that their invention can employ esters that have been known to be useful as drilling fluids—the very type of esters that Patel distinguishes.

The Examiner has rejected claims 27-37 and 83 under 35 U.S.C. 103(a) as being unpatentable over Lin U.S. Patent No. 5,569,642 in view of Mueller U.S. Patent No. 6,165,946. Specifically, the Examiner states that Lin teaches “use of a mixture of linear and branched paraffins for use as the continuous phase of a drilling fluid” and that “the paraffin mixture may be used in combination with an ester to improve the performance of the fluid or lower costs. . . .” The Examiner admits that Lin differs from Applicants’ invention in not disclosing an example of such esters. However, the Examiner states that Mueller teaches the use of an ester oil in drilling fluids which comprise esters of 2-ethylhexanol and that in his view it would be obvious to one of ordinary skill to use known drilling fluid ester formulations such as that of Mueller in the drilling fluid of Lin. The Examiner made the same rejection with similar reasoning in the previous office action. Applicants respectfully submitted in response that there is no suggestion in Lin or in Mueller as to which esters might be combined with which paraffins for suitability in a drilling fluid. Various art cited by the Examiner indicates that some esters are not effective or can be problematic in a drilling fluid. The Examiner responded that he was not persuaded because one of ordinary skill in the art would look to the type of esters used in the prior art to determine the type of esters which may be used. He added that since both Lin and Mueller are “directed to invert emulsion drilling fluids, one of ordinary skill in the art would clearly look to prior art such as Mueller, in order to determine the scope of esters to be used in Lin.” Applicants respectfully request the Examiner to reconsider his position.

The Federal Circuit has dictated that the prior art must provide a motivation or reason for the worker in the art, without the benefit of the applicants’

specification, to make the necessary changes to reach applicants' invention. *In re Jones*, 958 F.2d 347, 21 U.S.P.Q.2d 1941, 1944 (Fed. Cir. 1992); *In re Deminski*, 296 F.2d 436, 230 U.S.P.Q. 313 (Fed. Cir. 1986); *accord, Ex parte Kranz*, 19 U.S.P.Q.2d 1216, 1218 (B.P.A.I. 1990). “The motivation to combine references cannot come from the invention itself.” *Heidelberger Druckmaschinen AG v. Hantscho Commercial Products, Inc.*, 31 F.3d 1068, 30 U.S.P.Q.2d 1377 (Fed. Cir. 1993). (Fed. Cir. 1986). Applicants respectfully submit that the Examiner has failed to cite such motivation leading to Applicants’ invention. The Examiner has provided no basis or support in the references themselves for combining the references. “Absent such a suggestion to combine the references, [one] can do no more than piece the invention together using the patented invention as a template.” *Texas Instruments Inc. v. U.S. Int’l Trade Comm’n*, 988 F.2d 1165, 26 USPQ2d 1018 (Fed. Cir. 1993).

A basic issue is whether the applied references suggest the claimed invention as a solution to the specific problem solved by Applicants’ invention. *Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick Co.*, 730 F.2d 1452, 221 U.S.P.Q. 481 (Fed. Cir. 1984). Focusing on the obviousness of substitutions and differences, as Applicants respectfully submit the Examiner has done here, instead of on the invention as a whole, is a legally improper way to simplify the difficult determination of obviousness. *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 U.S.P.Q. 81, 93 (Fed. Cir. 1976). When prior-art references require a selective combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. Something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). There is no basis for concluding that an invention would have been obvious solely because it is a combination of elements that were known in the art at the time of the invention. *Smiths Industries Medical Systems Inc. v. Vital Signs Inc.*, 183 F.3d 1347, 51 U.S.P.Q.2d 1415, 1420 (Fed. Cir. 1999).

The Examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner

claimed. *In re Rouffet*, 149 F.3d 1350, 47 U.S.P.Q.2d 1453, 1458 (Fed. Cir. 1998). The motivation to make a specific structure is not abstract, but practical, and is always related to the properties or uses one skilled in the art would expect the structure to have, if made. The critical inquiry is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *In re Newell*, 891 F.2d 899, 13 U.S.P.Q.2d 1248, 1250 (Fed. Cir. 1989). Both the suggestion and the expectation of success must be founded in the prior art, not in Applicants' disclosure. *In re Dow Chemical Co.*, 837 F.2d 469, 5 U.S.P.Q.2d 1529 (Fed. Cir., 1988). **It is the invention as a whole that must be considered in obviousness determinations.** The invention as a whole embraces the structure, its properties, and the problem it solves.

It is error to focus solely on the product created, rather than on the obviousness or non-obviousness of its creation. Thus, the question is whether what the inventor did would have been obvious to one of ordinary skill in the art attempting to solve the problem upon which the inventor was working. The problem solved by the invention is always relevant. **The entirety of a claimed invention, including the combination viewed as a whole, the elements thereof, and the properties and purpose of the invention, must be considered.** Factors, including unexpected results, new features, solution of a different problem, and novel properties, are all considerations in the determination of obviousness in terms of 35 U.S.C. § 103. . . . The requisite view of the whole invention mandates consideration of not only its structure but also its properties and the problem solved. Notwithstanding the fact that only old elements are used, the patentability of a new combination of old elements, that produces a result that is not suggested in the references, is of ancient authority., Virtually all inventions are combinations, and every invention is formed of old elements. *In re Wright*, 848 F.2d 1216, 6 U.S.P.Q.2d 1959, 1961 (Fed. Cir. 1998 (emphasis added)).

Applicants respectfully submit that the Examiner's conclusion that the combination of the two references renders Applicants' invention obvious is erroneous.

However, the Examiner advised that he was not persuaded by Applicants' remarks and noted that Applicants had not submitted any secondary considerations, such as superior and unexpected results to help distinguish the current claims. Applicants respectfully submit that **the standard of patentability does not depend upon a showing of advantages or improvements,**

but rather upon obviousness. *Ex parte Parthasarathy and Ciapetta*, 174 U.S.P.Q. 63 (PTO Bd. App. 1971). **Patentability is gauged not only by the extent or simplicity of physical changes, but also by the perception of the necessity or desirability of making such changes to produce a new result. When viewed after disclosure, the changes may seem simple and such as should have been obvious to those in the field. However, this does not necessarily negative invention or patentability.** The conception of a new and useful improvement must be considered along with the actual means of achieving it in determining the presence or absence of invention. *In re Bisley*, 197 F.2d 355, 94 U.S.P.Q. 80, 86 (C.C.P.A. 1952). Although the Examiner has posited that Applicants invention would be an obvious variation to one of ordinary skill in the art to protect the environment, Applicants respectfully submit that, considering the desirability of protecting the environment and the tremendous pressure in the oil and gas industry to do so, doesn't it beg the question that the prior art has not provided Applicants' invention and that the industry would not have the benefits of Applicants' invention without Applicants' disclosure?

At least one court has said that the problem of obviousness under 103 in determining the patentability of new and useful chemical compounds (or, as it is sometimes called, the problem of 'chemical obviousness') is not really a problem in chemistry or another related field of science such as ecology; it is a problem of patent law. *In re Papesch*, 315 F.2d 381, 137 U.S.P.Q. 43 (C.C.P.A. 1963). A finding of obviousness predicated on obviousness of the compounds to a chemist is not necessarily conclusive as to obviousness of the subject matter as a whole under 35 U.S.C. § 103. *In re Stenmiski*, 444 F.2d 581, 170 U.S.P.Q. 343, 347, 348 (C.C.P.A. 1971). And there is nothing in the statutes or the case law which makes "that which is within the capabilities of one skilled in the art" synonymous with obviousness. *Ex parte Gerlach*, 212 U.S.P.Q. 471 (PTO Bd. App. 1980). The initial inquiry should be directed to the vantage point of attacking the problem solved by the invention at the time the invention was made. When prior art itself does not suggest or render obvious the claimed solution to that problem, the art involved does not satisfy the criteria of 35 U.S.C. § 103 for precluding patentability. *Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick Co.*, 730 F.2d 1452, 221 U.S.P.Q. 481 (Fed. Cir. 1984).

Applicants respectfully request the Examiner to reconsider his position and particularly reconsider Applicants' invention as a whole. See *In re Wright*, 848 F.2d 1216, 6 U.S.P.Q.2d 1959, 1961 (Fed. Cir. 1988).

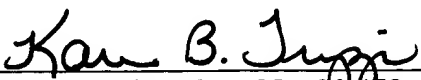
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Applicants respectfully submit that the claims as amended are now in condition for allowance and Applicants respectfully request the Examiner to allow the application to proceed to issue.

Respectfully submitted,

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